



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,014	06/25/2001	Fan-Gang Tseng	TSENG-8901	1556

7590

06/20/2003

Bo-In Lin
13445 Mandoli Drive
Los Altos Hills, CA 94022

EXAMINER

GORDON, BRIAN R

ART UNIT

PAPER NUMBER

1743

DATE MAILED: 06/20/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

09/892,014

Applicant(s)

TSENG ET AL.

Examiner

Brian R. Gordon

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Sunberg et al. US 6,451,188.

Sunberg et al. disclose a system and apparatus in which fluid introduction is facilitated through the use of a port which extends entirely through a microfluidic substrate. Capillary forces can be used to retain the fluid within the port, and a series of samples or other fluids may be introduced through a single port by sequentially blowing the fluid out through the substrate and replacing the removed fluid with an alternate fluid, or by displacing the fluid in part with additional fluid. In another aspect, microfluidic substrates have channels which varying in cross-sectional dimension so that capillary action spreads a fluid only within a limited portion of the channel network. In yet another aspect, the introduction ports may include a multiplicity of very small channels leading from the port to a fluid channel, so as to filter out particles or other contaminants which might otherwise block the channel at the junction between the channel and the introduction port.

Pins 38(sticks of the same length) are mounted on a pin support structure 48 (substrate). As pins 38 are aligned with through-hole ports 34, a large number of individual drops 36 may be transferred simultaneously from the pins to the through-hole ports by moving pin support structure 48 into close proximity with substrate 32. Drops 36 may be formed on pins 38 by dipping the pins in an associated array of fluid receptacles, by distributing the fluid through channels within fluid support structure 48, or the like. As only very small amounts of fluid are needed for the microfluidic analysis, the size of drops 36 can be quite small. By relying on pins to transfer drops on their outer surfaces (rather than individual pipettes with complex hydraulic or pneumatic systems), the cost and complexity of a system for transporting a large number of discrete drops of fluid into associated microfluidic ports can be substantially reduced. The pins may optionally be aligned in an array corresponding to at least a portion of a standard microtiter plate, e.g., 12 rows of 8 pins on 9 mm spacings, to facilitate preparing samples and other fluids with conventional chemical and biological techniques.

3. Claims 1-2 rejected under 35 U.S.C. 102(e) as being anticipated by Schurenberg et al. US 6,287,872

Schurenberg et al. disclose an invention that refers to sample support plates for the mass spectrometric analysis of large molecules, preferable biomolecules, methods for the manufacture of such sample support plates and methods for loading the sample support plates with samples of biomolecules from solutions together with matrix

Art Unit: 1743

substance for the ionization of the biomolecules using matrix-assisted laser desorption (MALDI).

The droplets are applied in an efficient manner if the multiple pipette is located at a distance of 500 micrometers above the sample support. About 500 nanoliters of sample solution are pipetted from every pipette tip of the multiple pipette onto the sample support as shown schematically in FIG. 1. Usually the amount of sample solution in the pipette tip is sealed off by a gas bubble, therefore there is no more solution present in the channel (microchannel for holding a liquid sample) of the pipette tip afterward and the contact forces to the hydrophobic pipette tip are very minimal.

As seen in figure 1 the pipette tips labeled as 4 are of the same length and comprise a channel for holding the liquid.

4. Claims 1-2 rejected under 35 U.S.C. 102(e) as being anticipated by Martinsky US 6,101,946.

Martinsky discloses a device for fabricating microarrays of biochemical substances, consisting of a holder and one or more printing pins (sticks of the same length). The holder contains apertures with regular spacing that define the location of one or more printing pins during the printing process. The tip of each printing pin contains a sample channel (channels for holding a liquid) that holds a predetermined volume of biological or chemical sample and a point that is machined to precision with an electronic discharge machine (EDM). The device can be attached to a motion control system for precise and automated movement in three dimensions. The flat tips of the pins are immersed in a biochemical sample such that a predefined volume of sample

Art Unit: 1743

fills the sample channel of each pin. The holder and pins are then moved in proximity to a printing substrate whereby direct contact between the flat tips of the pins and the surface results in the transfer of a small amount of the sample onto the solid surface. The holder and pins are mass produced at high precision to ensure that the printed elements in the resultant microarray contains approximately the same quantity of sample. In one preferred embodiment, the device is employed to manufacture arrays of nucleic acids or derivatives thereof.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Haslam et al., Brady et al., Shermer et al., Ohnishi et al., Yang et al., Roach et al., Rose et al., Marinaro et al., Baier (,930 and ,119), Sundberg et al. (,825), Birch et al., Little et al., Ershov et al. disclose printing and liquid depositing devices.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is (703) 305-0399. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 703-308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Art Unit: 1743

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

brg
June 15, 2003


Jill Warden
Supervisory Patent Examiner
Technology Center 1700